AIR FORCE ENERGY PROGRAM
PROCEDURAL MEMORANDUM (AFEPPM)
96-31 June, 1996

AIR FORCE ENERGY OFFICE

DEFENSE UTILITY ENERGY REPORTING SYSTEM

This memorandum is the implementation plan for Air Force philosophy, organizational relationships, responsibilities, and procedures for implementing and managing the Defense Utility Energy Reporting System (DUERS) data program for installation, major command, and Air Staff facility energy managers, and to implement Defense Utility Energy Reporting System (DOD 5126.46-M-2, dated November 1993). AFEPPM 86-8, Defense Energy Information System - Utility Energy Report, AFEPPM 86-3, Energy Efficiency in Existing Facilities, AFEPPM 86-4, Energy Efficiency in New Facilities, AFEPPM 86-5, Energy Efficiency in General Operation Facilities and AFEPPM 90-2, Facility Energy Program Reporting are rescinded.

1. **Applicability.** This implementation plan applies to all Air Force levels of command, especially individuals that prepare, validate, or use the DUERS.

2. **Background.**

2.1. **Defense Utility Energy Reporting System (DUERS).** DUERS, formerly known as the Defense Energy Information System (DEIS-II), is designed to account for the consumption of utility energy resources used by Department of Defense (DoD) activities. The DUERS requires data on the cost and consumption of purchased utility energies (electricity, fuel oil, natural gas, steam and hot water, coal, propane, and liquefied petroleum gas), water (potable), and renewable energy sources. Environmental data in the form of the type and number of buildings, and installation energy consuming building square footage data is also required. Heating and cooling degree days are optional and may be reported if the data is available. Baseline data is used to determine conservation achievements.

2.2.**Purpose.** The purpose of the DUERS is to provide policy makers, commanders, and energy managers the minimum essential data necessary to effectively manage their facility energy programs. This data is used by the Air Staff to budget for future energy costs, to track

energy goal progress, to validate energy efficiency projects, to analyze Air Force consumption trends, and most important, to develop long-term policy that ensures adequate and deliverable energy resources are available in support of the Air Force mission.

2.3. **Additional Energy Tracking.** Bases or MAJCOMs are encouraged to locally track other data that effect their energy consumption: changes in operating hours, added missions, facilities high or low energy use versus the baseline, hangars being converted to office space, reductions in square footage per personnel consolidation, safety requirements, or other mandatory additions (i.e., Military Family Housing street lighting, added airfield apron lighting, etc). This data can be used to give a more detailed evaluation of a base/MAJCOM energy program.

3. **Procedures.**

3.1. Reporting Requirements. The DUERS includes utility energy consumption and building square footage data for all owned or leased facilities. This includes all tenants, customers, and remote bases, or sites assigned to or supported by the reporting Air Force installation. When mutually agreeable between the host and tenant, major energy consuming tenants may report energy consumption through their own command channels. However, data submitted in this manner will be coordinated between hosts and tenants to ensure that all consumption, , cost, and square footage data is reported, and that duplicate reporting of data does not occur. DoD has directed that, beginning with FY94, Commissary data will be reported separately and will not be included in the Air Force DUERS report. No adjustments to the FY85 baseline will be made.

3.2. **Reporting Sources.** Separate reports are required for each individual Department of Defense Activity Address Code (DODAAC) as follows:

3.2.1. Utility energy consumption and building data (total energy and building data minus family housing data and mobility substitute) shall be reported using a separate DODAAC.

3.2.1.1. Family housing energy consumption and building data shall be reported using a separate DODAAC.

3.2.1.2. Mobility substitute energy consumption and building data shall be reported using a separate DODAAC. Total building energy consumption may be reported as mobility substitute energy when mobility substitute energy is not separately metered, and mobility substitute energy is most (more than 60 percent) of the building energy consumption.

Note: The ability to report Mobility substitute energy under a separate DODAAC will be available to the bases in a future release of the DUERS software. Until that time, AFCESA will extract Mobility Substitute data and report separately.

3.3. **Report Frequency and Content.** The DUERS will be prepared and submitted quarterly for the inclusive periods of October through December, January through March, April through June, and July through September. Major commands may require monthly reporting from their installations. The DUERS data cutoff of monthly records shall be determined by the commercial utilities' billing schedules at each installation. For example, the May report may be the bill from 16 April to 15 May.

3.4. **Energy Consumption Records.** Records shall be created using the following guidelines:

3.4.1. DODAAC - Report the appropriate consuming activities DODAAC.

3.4.1.1. Data reported should be for indicated DODAAC minus data reported to DoD by some other activity (i.e., Commissary, tenant, etc.) and exempted data.

3.4.2. BTU Content - Report the measured or certified BTU content for the product if it significantly differs from the standard BTU value shown for the product in attachment 2.

3.4.3. Consumption- Report the installation's total energy consumed (minus exempted energy) by DODACC, energy category, and Product Code for the reporting month.

3.4.3.1. Exclude family housing energy consumption from the industrial energy consumption since it is reported under a separate DODAAC.

3.4.3.2. Exclude mobility substitute energy consumption from the industrial energy consumption since it is reported under a separate DODAAC.

3.4.3.3. Report industrial energy consumption as process at **Tinker AFB, Robins AFB, Kelly AFB, McClelllen AFB, Hill AFB, Newark AFS and Arnold AFB**.

3.4.3.4. Consumption is reported in units as described in attachment 2. Include tenants and remote bases as appropriate.

3.4.4. Cost - Report cost in whole dollars for the total consumption reported (minus exempted energy).

3.4.4.1. Energy costs are for the energy consumed only, and do not include activity utility plant and/or system operation and maintenance.

3.4.4.2. Water cost include any legitimate cost that would be saved if water consumption is reduced. This includes sewage costs.

3.4.4.3. For fuel oils and coal, use actual cost (product and transportation).

3.4.4.4. Costs are as they appear on the bill from the commercial supplier (including demand charges, power factor charges, etc.).

3.4.4.5. If the utility bill is not available at the time the report is due, multiply the price per unit for the previous reporting period by the consumption units for the current reporting period to arrive at an estmated cost. Correct estimated costs when the actual data is available.

NOTE: When the Full Cost Visibility Utility Module for WIMS is implemented, the creation of cost and consumption records will be automated and input to the DUERS electronically (see Atch 6).

3.4.5. Weather data - Optional. Using a base of 65 degrees Fahrenheit, calculate the number of heating or cooling degree days (HDD or CDD) as defined in the current ASHRAE Handbook.

NOTE: DOD is no longer requiring weather data and will not be responsible for inputting from the weather service. We recommend base DUERS managers input the HDD and CDD for their installations if the data is available.

3.4.6. Building and Square Footage Data - The DUERS manager should work with the bases real property manager to determine the square footage that should be reported in DUERS.

NOTE: The WIMS Real Property Base Level System contains an indicator for buildings meeting DUERS reporting requirements. **This indicator will be used to electronically extract an installation's building and square footage data monthly in a future release of the DUERS Software** (see Atch 5)**.** It is the responsibility of the base level DUERS manager to ensure this indicator reflects only buildings using energy and excludes sterile buildings (buildings not in regular use, not consuming energy, or awaiting demolition) or buildings maintained in "caretaker" condition throughout the year with only minimal security lighting.

4. **Responsibilities.**

4.1. **Individual Installations.**

4.1.1. Installation DUERS Managers should ensure that base master meters are read and calibrated regularly and **real property record indicators are current.** In addition, they will prepare a consolidated database using the latest version of the Air Force DUERS program, to cover the reporting period and submit the database, including corrections to previously reported data to his/her MAJCOM, to arrive by the 30th day of the first month following the reporting period, or as directed by the MAJCOM.

4.1.2. It is recommended that the Base Energy Steering Groups review their DUERS reports at the end of each quarter to assess their progress towards the energy efficiency goals. Calculations used for determining progress towards energy efficiency goals are described in attachment 3.

4.2. **Major Commands.**

4.2.1. Major Command Energy Steering Groups will review their DUERS reports at the end of each quarter of the fiscal year to ensure continued progress towards energy efficiency goals. Calculations used for determining progress towards energy efficiency goals are described in attachment 3.

4.2.2. Major Command DUERS Managers will collect, validate, and consolidate installation DUERS data. DUERS reporting shall be accomplished using the most current version of the Air Force automated DUERS program. The final report, including corrections to previously reported data, will be submitted to HQ AFCESA/CESE, 139 Barnes Drive, Suite 1, Tyndall AFB, FL 32403-5319, by the 15th day of the second month following the end of the reporting period. See attachment 4.

4.3. **HQ AFCESA/CES.**

4.3.1. Will consolidate the major command data and will ensure that the energy consumption, square footage, and cost are reported accurately in the DUERS report.

4.3.2. Will transmit consolidated DUERS data to the Defense Logistics Agency, Cameron Station, Alexandria, VA 22314-6160 by the 30th day of the second month following the reporting period.

4.3.3. Will furnish a consolidated report to AF/CEO and AF/LGSSF prior to the submittal to the Defense Logistics Agency.

OPR: HQ USAF/LGSP (Major Marsha Davis)

Attachment 1

Glossary

DODAAC is a Department of Defense Activity Address Code.

Energy Using Building refers to a facility that has walls, roof, and floor, and consumes energy. See paragraph 3.3.

Exempted Data is consumption and cost data not paid for by the government out of appropriated or non appropriated funds (i.e., banks, credit unions, schools, etc.).

Mobility Substitution Energy refers to the utility energy that directly substitutes for mobility energy to achieve greater efficiency. Examples include cold iron ships support, aircraft, ship and weapons systems, simulator energy use, central flight line aircraft power systems, and vehicles powered by natural gas.

Process Energy refers to utility energy used in buildings engaged in manufacturing, repair, materiel storage and distribution, commissary, operational test and evaluation, disposal, incineration and similar activities. **(For the Air Force, this definition applies to Tinker AFB, Robins AFB, Kelly AFB, McClellen AFB, Hill AFB, Newark AFS, and Arnold AFB.)**

Square Footage defines the gross area of a building reported in the Air Force real property inventory records.

Utility Energy is energy used for operations of buildings (lights, HVAC, domestic hot water, etc.) and the functions within them (computers, copiers, office equipment, etc.), to include electricity, coal, natural gas, petroleum, etc.

Water Potable refers to water purchased and or produced, including desalination, for consumption in the base potable water system.

Water Costs includes any legitimate cost that would be saved if water consumption is reduced.

Attachment 2

Product Codes, BTU Content, and Product Units for DUERS Reporting			
Product	**Code**	**BTU Content**	**Units**
Electricity	ELC	3,413,000 BTU/MWH	Megawatt hours (MWH)
Natural Gas	NAG	1,031,000 BTU/KCF	Thousand cubic feet (KCF)
Coal, Anthracite	ANC	25,400,000 BTU/short ton	Short tons
Coal, Bituminous	COL	24,580,000 BTU/short ton	Short tons
Coke	COK	25,380,000 BTU/short ton	Short tons
Purchased Steam or hot water	SHW	Varies with temperature and pressure	MBTU (Report in pounds DUERS converts to MBTUs)
Fuel oil, distillate	FSD	5,825,000 BTU/barrel	Barrels
Fuel oil, residual	FSR	6,287,000 BTU/barrel	Barrels
Fuel oil, mixed	FSX	6,000,000 BTU/barrel	Barrels
Fuel oil, reclaimed	FOR	5,000,000 BTU/barrel	Barrels
Propane/LPG/butane	PPG	95,500 BTU/gallon	Gallons
Photovoltaic	PHO	3,413 BTU/KWH	Kilowatt hours (KWH)
Solar thermal	SOL	1,000,000 BTU/MBTU	MBTU
Wind Power	WND	3,413 BTU/KWH	Kilowatt hours (KWH)
Wood	WUD	17,000,000 BTU/short ton	Short tons
Geothermal (Heat)	GEO	Varies with temperature and pressure	MBTU
Geothermal	GLC	3,413 BTU/KWH	Kilowatt hours (KWH)
Refuse derived Fuel	RDF	6,000,000 BTU/short ton	Short tons
Hydroelectric	HYD	3,413 BTU/KWH	Kilowatt hours (KWH)
Water Potable	PWT	NONE	Million gallons

Attachment 3

Formulas Used to DetermineEnergy Reduction.

$$R = T - (M + RE)$$

NOTE: Renewable energy includes SOL, WND, WUD, GEO, GLC, RDF, HYD, FOR, PHO.

$$MBTU/SF = R / (SF * 1000)$$

NOTE: Square footage is in thousands in DUERS and must be converted millions.

$$PRMS = (CMS - BMS) *100 / BMS$$

Where

R	=	Reportable MBTUs
T	=	Total MBTUs
M	=	Mobility Substitute Energy
RE	=	Renewable Energy
SF	=	Square Footage
CMS	=	Current MBTUs/Square Foot
BMS	=	Baseline MBTUs/Square Foot
PRMS	=	Percent Reduction in MBTUs/Square Foot

Attachment 4

Submission Schedule

JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
	15 MAJCOM - 1st Qtr due to AFCESA	1 AFCESA - 1st Qtr due to DLA		15 MAJCOM - 2nd Qtr due to AFCESA 30 AFCESA - 2nd Qtr due to DLA	
JULY	**AUGUST**	**SEPTEMBER**	**OCTOBER**	**NOVEMBER**	**DECEMBER**
	15 MAJCOM - 3st Qtr due to AFCESA 28 AFCESA - 3rd Qtr due to DLA			15 MAJCOM - 4nd Qtr due to AFCESA 30 AFCESA - 4nd Qtr due to DLA	

* Bases should coordinate monthly reporting schedule with MAJCOMS

Attachment 5

Draft Procedures for Implementing DUERS/Real Property Interface

Step 1: Contact your Real Property Manager to determine the four character installation code for all buildings that you track under each DODAAC. For example, the installation code for Tyndall AFB is XLWU. However, Tyndall also has off-base Family Housing listed in the real property records under EQBC. In order to pick up all buildings under your MFH and Main Base DODAACs, you must add all installation codes covering these buildings to the new file, EDIN. Your Real Property Manager will assist you in identifying the installation code if necessary. When you have all the information, run program EDINUD from EDUROBJ to add records for each installation code and DODAAC.

Step 2: A one position field, DUERS Reportable, has been added to the real property records. The Energy Manager has access to this field when loaded correctly in the IUSR file. The field must contain a space, 'Y' or 'N'. The program has been coded to pick up certain buildings by default. These defaults will be Inventory Control type 'A' (Single purpose buildings) and type 'D' (line entries for multi purpose buildings). The program has been coded to pick up the square footage for Military Family Housing (cat code 711-xxx), for all Inventory Control type 'A' and 'D' records, if the DUERS Reportable field is a space or a 'Y'. All Control type 'A' and 'D' records with a Category code beginning with '711' will be included under your Military Family Housing DODAAC by installation code. No editing of these records is necessary unless you wish to exclude a building by entering a 'N' in the DUERS Reportable field for that record.For example, the square footage for a MFH unit coded as an 'A' inventory control record, category code 711121 would be picked up by the program as long as there was not a 'N' put in the DUERS Reportable field. However, the square footage for the attached carport coded as an "X" inventory control record category code 711312 would not be recorded. Admin buildings beginning with prefix '610' and '141' will also be picked up automatically.

Step 3: An exception report has been created to allow the DUERS manager to review all other inventory control type 'A' and 'D' records. Press PF2 from the DUERS Real Property Menu to execute this report. You will find the DUERS Real Property Menu from the Energy Consumption Influencing Factors screen (PF19). This report will give you a list of all 'A' and 'D' records where the DUERS Reportable field is blank and the program has not been coded to pick up the record automatically. Use this listing to update each real property record with a 'Y' or 'N' based on whether or not the building square footage is DUERS reportable. If there is no power to the building, the records should be marked 'N'. Other buildings that should be marked 'N' include storage buildings with roofs but no walls. Commissaries, category code 740266, will be excluded automatically and will not show up on your exception report.

Step 4: There may be other Inventory Control type records in the Real Property System that you wish to include as DUERS Reportable. For example, Towers are listed under Inventory Control type 'E', and will not be included in the exception report. If there are individual items in the Real Property system other than Inventory Control type 'A' and 'D' that you wish to include, bring up these records in your real property system and place a 'Y' in the DUERS Reportable field.

Step 5: At this point, each building on the exception report (Step 3) should have been reviewed and the real property records marked accordingly. Two other reports are provided to assure real property square footage is tallied correctly. These reports are available from the DUERS Real Property Menu:

- EDISFTIN- A listing of all Real Property Records whose square footage is included in DUERS either by default or specifically by the DUERS manager.

  EDISFTEX - A listing of all Real Property records that have been excluded from DUERS either by default or specifically by the DUERS manager.

Step 6: If there is "new construction" that has been completed and occupied, and not yet added to the Real Property system, then this square footage must be tracked manually. Enter the number of buildings and square footage being tracked manually under "New" on the DUERS Real Property Information screen. **Note: As soon as the building is added to the real property records discontinue tracking manually.** Another item that must be tracked manually are trailers that are not included in the real property system.

Step 7: Press PF18 from the Energy Consumption Influencing Factors screen. The system will read the real property records and total the square footage for all installation codes for that DODAAC. If there is a number in the "New" buildings and square feet fields, then that number will be added into the "Owned" fields. This process will occur automatically when adding or modifying the September record for that DODAAC.

Attachment 6

Draft Procedures for Implementing DUERS/Full Cost Visibility Utility Module Interface

The WIMS Full Cost Visibility Utility Module requirements were developed in a workshop at HQ AFCESA, 22 to 26 May 1995. When this module is developed and implemented it will interface with the DUERS software.

The FCV Utility module will generate a consumption file (UCONYYMM) where YYMM = Year and Month. The DUERS software will be modified to have the option of reading this file to generate the monthly records of cost and consumption for each product. Once the format of the consumption file is finalized and the DUERS interface is in place the DUERS, software should be flexible enough to take input from any system generating a "consumption" file in the correct format.
